

AVIATION

AUGUST 14, 1922

Issued Weekly

PRICE 10 CENTS



American Air Transport

VOLUME XIII
Number 7

SPECIAL FEATURES

AIR POWER HAS COME TO STAY
THE BELLANCA CF 5-SEATER CABIN AIRPLANE
2600 GOVERNMENT PLANES NEEDED
WAR DEPARTMENT DEFINES FLYING SERVICE

Four
Dollars
a Year

THE GARDNER, MOFFAT CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

LEARN TO FLY NOW!



FLYING is destined to become one of the foremost professions in the world. It is also destined to become one of the most profitable. But the rewards will go only to the men who get into aviation now—while the industry is yet young. These are the men who will get the good jobs, the important positions, the big salaries.

You can be one of these men. The first necessity is training. You must learn all about airplane structure, airplane engines, and aerodynamics. You must learn how to fly—how to be a pilot.

WHERE TO LEARN

There is just one place where you can get the broadest knowledge of airplanes and the most thorough training in flying. That place is Dayton, Ohio—the birthplace of the airplane—the leading city in aviation progress. In Dayton you will be taught mastery of the air on the great flying field of the Dayton Wright Company. You will learn flying under the supervision of expert and experienced teachers—men who have flown thousands upon thousands of miles and know exactly how to teach you what they have learned. You will use the very latest types of training planes. You will learn flying by the modified Cessport System.

As a pupil of the Dayton Wright Company you will have the opportunity of visiting McCook Field—the Engineering Division of the Army Air Service. Here you may study at first hand the designing and building of many types of military aircraft.

As a pupil of the Dayton Wright Company you will learn more than flying. You will learn the principles of standard airplane design, and many other things essential to real knowledge of commercial flying.

With Dayton Wright facilities and Dayton Wright methods of training you will gain in the shortest possible time that knowledge absolutely essential to your success in this great new profession of flying. The time to learn is now—when you can still get in on the ground floor.

WHAT TO DO FIRST

You know that flying has a limitless future. You know that you can rise with the industry—if you only have the necessary knowledge. You know that the inside place to acquire this knowledge is at the Training School for Pilots conducted by the Dayton Wright Company—a training school located in the very center of airplane knowledge and progress.

Then the first thing for you to do is to write this company for full information regarding their Training School. You can make your future what you will by learning mastery of the air. Send now for full details. There is no charge—an obligation—no reason why you should delay a moment in sending for complete free information on the course of instruction offered by the Training School for Pilots.

DAYTON WRIGHT COMPANY

DAYTON, OHIO, U. S. A.

"The birthplace of the airplane"



LEADERSHIP!

MAKING HISTORY

JULY-1922

THE GREAT LAKES DIVISION OF THE
AEROMARINE AIRWAYS, INC.

was officially opened last month—and the first round trip daily flights between two big American cities began. Extensive scheduled color flying cruises now leave Cleveland and Detroit at 9 A.M. daily, returning at 5 P.M. This is only one of the many progressive developments that has helped to make AEROMARINE the leader of all American Aircraft Companies and the largest Aerial Transportation Company in the world operating flying boats.

NOTE

We offer a limited number of AEROMARINE NAVY H.S. FLYING BOATS for sale at attractive prices. Write for detailed information and price list.

Aeromarine
INC. U. S. PAT. OFF.

ENGINEERING AND SALES CO.
1800 TIMES BUILDING
NEW YORK

"Be Sure It's an Aeromarine"

Aeromarine Flying Boats have flown over a Million Passenger Miles, carried Thousands of Passengers in the Past Ten and a Half Years—without a single mishap.



FOR SPORT OR PROFIT OR BOTH

Planes - Engines - Spares - Materials

If Aviation interests you as a sportman or concerns you as a business,
these two

WAR DEPARTMENT AUCTIONS

AT PARK FIELD, AUGUST 24th and AMERICUS, GA., AUGUST 29th

will open new avenues of advantage. Air Service material, much of it new,
most of it in excellent condition is to be disposed of. These are some of the
items you will find in the two complete catalogs.

AT PARK FIELD, TENN.

JN-4 Spare Parts. A quantity and variety of these, new, sufficient serve as important additions to the reserves of several operating companies.

219 Engines. Curtiss OX-5 90 H.P., 8 cylinder, in excellent condition. A quantity of spare parts for these engines is also included.

Propellers, both new and used (in excellent condition) Magenta. A quantity of Berling Magneto and Spare parts. These are listed as new.



The Park Field sale also includes Electrical Equipment and Supplies, Engines, Clothing and Equipment, Airplane Tools and for a few Special, Hand and Machine Tools for Machine Shop, Woodworking Shop and Blacksmith Shop. Guns and Gun Lenses, Pottery and Skin, Pottery, Metals in Sheet, Bars, Tubes and Castings, Copper, Aluminum, Bronze, Brass, Steel, etc., in fact nearly everything that a well equipped flying club, manufacturing or private buyer should have. See and check the catalogs of both sales.



The government reserves the right to reject any or all bids.

For catalogs address:-

COMMANDING OFFICER,
PARK FIELD, MILLINGTON, TENN.

COMMANDING OFFICER,
AIR INTERMEDIATE DEPOT, AMERICUS, GA.

AT AMERICUS, GA.

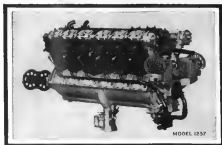
233 Airplanes, including 223 JN-4's and 10 JN-4 Can. Of these, 12 are equipped with OX-5 Engines and 56 are Focke-Lugers only. The majority are in excellent condition. A quantity of spare parts is also listed.

675 Engines, including 607 OX-5's and the balance Le Rhone, Gnome, Clerget and Mercader, ranging from 50 to 160 H.P. The majority are new or in excellent condition.

238 Magneto for OX-5 Engines. New, and quantities of spare parts.

134 Carburators of various kinds and quantities of spare parts for Zenith type.

2,322 OX-5 Propellers, new, Aviator Clothing and Equipment. All in AA or A condition (which means new or in excellent shape).



Freedom From Vibration

A Packard Aircraft Engine in flight is as smooth and flexible as a Twin-Six on the roadway below. Its perfectly balanced design provides an even flow of power, closely approaching that of a turbine.

PACKARD MOTOR CAR COMPANY, DETROIT, U. S. A.



PACKARD

Ask the man who flies one

WAR DEPARTMENT



1922 demands PILOTS

AND PILOTS will lead the demand for more aircraft. It is not the men in khaki coats with pointed collars, but the men in khaki coats with pointed collars, who are the ones who prepare today for tomorrow's pilots as the transportation will keep the men prepared for the future.

You can be a pilot

You can make these profits yours, but only if you act NOW. In another twelve months competition will make your selling time more difficult. Remember that you must be the "only one"?

1. - The War Department has for sale 400 standard, Curtiss tractor airplanes. You can buy one or all.
2. - These planes can be bought virtually at your own price. This is by no means false to be repeated.

In Washington, D. C.
September 5, 8, and 12

You who are hesitating to fly, know how it will pay you to buy a ship tomorrow what you are willing to give... and every day after that when you have completed flying and will be compelled to buy a plane at the other fellow's price.

Perhaps you own a ship now. If so, you know that equipment from the War Department are not duplicated elsewhere as value. If you have not discovered that fact, it will pay you to acquire this new buying field.

Complete catalogs of offerings in these three sales had sales are yours for the asking. Get them now and see how you can save and make money. Write



CHIEF, M. D. & S. SECT., AIR SERVICE
Room A-2624, Munitions Building
WASHINGTON, D. C.



Tachometer



Dish Band Clock

NOTE TO DEALERS

Be prepared to get your share of business that is growing every month. Nothing sells like price backed up with quality. The quality was built into every article in these sales—and the price is strictly in your own hands.

In addition to the 400 tractor airplanes there will be sold

825 Engines—OXS and other Curtiss types.

142 Engines—Nippon Seize, Model "A".

231 Radiators
8,400 Propellers

36,417 Instruments—Tachometers, altimeters, thermographs, indicators, clocks, anemometers, fuel-instruments, gauges, manometers, altimeters, goniometers, compasses, etc., in lots of various sizes.

Offerings in these sales are stored at 17 Air Service Depots, from Long Island to Texas, and from Ohio to California. There's a depot near your town. Get the catalogs and then inspect at a neighboring depot. The Government reserves the right to reject any or all bids.

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THOMAS-MORSE AIRCRAFT CORPORATION

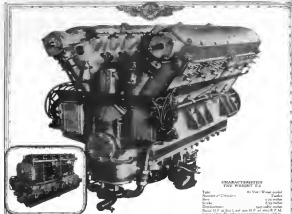
CONTRACTORS TO U. S. GOVERNMENT

ITHACA,



NEW YORK

WAR DEPARTMENT



CHARACTERISTICS
THE WRIGHT T-2

Type	No. Val/Water cooled	Twelve
Number of Cylinders	Twelve	
Stroke	10 in.	
Displacement	1,000 cu. in.	
Rated H.P. at 2,300 rev. and M.P. at 2,100 R.P.M.	1,000	
Weight (including water and accessories) at 2,100 R.P.M.	1,000	
Weight (including water and accessories) at 2,100 R.P.M.	1,000	
Rated Horsepower (at 2,100 R.P.M.)	1,000	
Rated Horsepower (at 2,100 R.P.M.)	1,000	
Rated Horsepower (at 2,100 R.P.M.)	1,000	

Model C-1 engine M.P. A large model available. Sample shown at 2,100 R.P.M. at 1,000 H.P. and 1,000 H.P. at 2,100 R.P.M.

AN AMERICAN DEVELOPMENT IN SEAPLANE ENGINES MARKING A DISTINCT ADVANCE

The Wright T-2 is a large twelve-cylinder, water cooled type, designed for use in Bombing and Observation planes. The prime requirements for this type of work are

low fuel consumption, flexibility and absolute reliability. While economy and reliability are more essential than weight, this engine weighs less than two pounds per horse power at its higher range.

Wright Aeronautical Corporation, Paterson, New Jersey, U.S.A.

WRIGHT

AERONAUTICAL CORPORATION
PATERSON, NEW JERSEY, U. S. A.

L. D. CARROLL, PRESIDENT
W. D. MORRIS, VICE-PRESIDENT
W. L. SLOAN, TREASURER
GEO. HARRIS, MANAGER

Vol. XIII

AUGUST 14, 1922

No. 7

AVIATION

LAMARCA O'DAY, EDITOR
VINCENT E. CLARK, MANAGER
EDWARD F. WATKINS, MANAGER
RALPH H. UTECH, MANAGER

Air Travel Safe

THE outstanding achievement of commercial aviation in the United States over the war has been the demonstration by the Aeronautics Airways that air travel is safe. The importance of this fact is not alone interesting to those who are engaged in aviation, but in a much larger way to the public which has become tiringly aware of accidents caused by unskilled flying, irresponsible pilots, and unskipped aircraft.

Without a subsidy, operating over the open sea from Key West to Havana, a most difficult route, and over the Detroit to Cleveland airway, these flying boats have, during these years, carried eleven thousand paid passengers, making over a million passenger miles flown, without a single mishap to say of them. Such an accomplishment is convincing proof that the air is safer than the road and that all aviation needs is human, a great transportation system of proper supervision and maintenance. The operating personnel of Aeronautics Airways have given this and the result has been a perfect record.

Regularity of schedule has also been attained. The air lines have and arrive on the minute. Wind and weather have made no difference to these steady craft. Safety, and safety of the time of arrival have made these lines attract the thousands of passengers who have learned the advantage of air travel. The maintenance of the ships of this company is of the highest order and this is doing more to attract passengers than merely the pleasure of air travel. Aside from the safety and utility, the scenic features of flying over water have been enjoyed by every passenger. The comfort afforded travelers in these air lineboats while floating through the air over beautiful stretches of water, has made this form of a most attractive and thrilling experience.

Business men have awakened to the fact that already can play an important part in their business. Business men know of orders being carried by seaplanes because they reached their customers first, by flying. An executive in Cleveland was needed in Detroit for an important conference in twenty minutes he was there. It would have taken him five and a half hours by the fastest train. Such a service, when understood, will be as much a part of business procedure as the railroad expense voucher is to-day.

The increased cost of an improved method of transportation has always been an obstacle at first, but it is soon understood. Compare railroad fares. To go on a train running at sixty miles an hour, the public has been willing to pay a heavy price. But the great expense of upkeep of railroad and rolling stock has shown the railroads that they have reached their maximum speed. Now comes the air traveler who requires speed—not fifty or sixty miles an hour, but safety is a head and over. The air is the only possible way to attain it. Even were it possible, the railroads would have to change the track a service would have

to exceed the present air tariff. Those who have ridden in trains running seventy miles an hour and experienced the discomfort of vibration and the ever present feeling of danger of a faulty and not best appreciate the slogan "Speed with Safety".

All commercial aviation needed was just what the Aeronautics organization has demonstrated, that there is safety in regulated flying, that the high speed of aircraft can be used in business where the saving of time often means a gain of thousands of dollars in business, and that the cost is not as much as any other service would have to charge were it to make travel at similar speed.

West Point and the Air Service

AN indication of the growing importance the Air Service assumes in the opinion of the Army is shown by the selection of this branch of the service by students of the class of 1922 at West Point Military Academy. Nineteen of the one hundred and thirty-one graduates chose this year the Air Service. The infantry received fifty-one, and the Field Artillery twenty-three graduates, while the Cavalry, Coast Artillery, Engineers and Signal Corps each received fewer than the Air Service.

As the other branches of the service have received specialized instruction at the Military Academy for many years, and as aviation has only recently been included, the significance of these figures is of great interest.

The War Department should give every cadet a fundamental training in aviation, both by lecture and at flying fields, so that they may have the same familiarity with the Air Service as they have, say, with the Artillery and Cavalry.

A staff of Air Service officers should be assigned to West Point for this purpose. Thus the Military Academy will be giving the Air Service an office material that is properly grounded in aviation. The cadets will then enter the branch of the Army with full knowledge of its great possibilities.

A Promising American Design

THE new Bolleaux seaplane which is described in this issue is a development of which the American aircraft industry may take justifiable pride. As may be seen from the specifications and performance figures published, this machine carries in a cabin four passengers and a pilot with fuel for a 600 mile flight with only a 90 lb. excess. This corresponds to a pay load of 75 pounds per horsepower, whereas the pay load of a Hot 508 is only 11½ pounds, and the best foreign seaplanes carry at the most only about 8 pounds per horsepower.

It is gratifying that this country should produce a commercial airplane so far in advance of European substituted designs.

to the bottom edge of the fuselage and the outward ends to the main spar points of the space of the main wings, thereby taking care of the landing and flying stresses. By means of this arrangement the main fuselage, stream-line struts-braces and wires are completely eliminated, thereby decreasing the weight and load resistance considerably, and resulting at the same time an additional source of lift. Another important advantage of this combination, is the fact furnishing a differential means of lateral balance effected by their position at an exaggerated distance.

The load factor for the lifting stresses is 24 and is composed of $\frac{1}{2}$ in cables, which start from the main spar points of the space of the main wings and pass through the secondary wings and the lower part of the fuselage, and are connected at the main spar point of the space of the outer wing. The L/D of the upper wing, although of a thick section and adapted to lightness of construction, is 20, and the outer

wings with comfort, although are may be carried in an emergency.

The location of the cabin is such that the weight of the passenger couplings at all times with the center of gravity, which makes the machine as well balanced with a full load as with a light load. This arrangement makes the use of an adjustable stabilizer unnecessary. The passengers in the rear seat face forward while those in front can face in either direction.

The interior height of the cabin is one inch higher than that of an automobile limousine. Three windows are located on each side of the cabin, and one window in the front, to give a view ahead.

The engine compartment is completely separated from the passenger compartment, making it possible to smoke and relieve the noise of the motor.

Ventilation is provided for by conventional air outlets and



Three-quarter rear view of the Bellanca CP cabin plane, from which the ample range of vision obtained by the pilot may be gauged

of pressure displacement is only 10 per cent of the cord, which is commensurate to the latitudes of the machine and also to its lightness. The drift at low angle is very small, making the wing well adapted for high speed.

The cross section of the lower wing, the thickness of which is 24 per cent of the cord, is such that its L/D is 14.4 and the L/D of the machine combination (main wings, auxiliary wings and resistance of short wires and struts) is 25. The superiority of the combination compared to internal braced wings is readily seen. Lighter construction, higher L/D, smaller drift at low lift is offset.

Stability Factors

The fuselage has been designed to withstand a load of 20 lb. per sq. ft., applied at the tail surfaces, stabilizer and elevator, and beside that the various members have been figured for a factor of safety of 2, making the fuselage capable to stand a load of 70 lb. per sq. ft. at the tail surfaces. The strength of the fuselage has been proven in various tests, holding the ship in place, fixed, when fully, etc., and getting off from the same place very easily, as well as by all possible aerobatic maneuvers, including steep dives and banking out sharply.

The stabilizer and elevator are made to withstand a load of 50 lb. per sq. ft., and the rudder for a load of 20 lb. per sq. ft.

The landing gear has been designed for a load factor of 8

Fuselage

The fuselage, which is of good streamlining form, is of the composite type, constructed with a main reinforcing of Port Oxford steel framing a stiff frame of two angles and box-girder construction with cables and wires.

The cabin is of metal construction and accommodates four

the front window which can be opened as widely as desired. Two baggage compartments are also provided for.

Power Plant

An air-cooled 10 cylinder Anzani 86 hp. motor is used, which weighs 345 lb. The engine is so mounted as to dovetail with the rest of the body, a perfect aerodynamic form with low head resistance.

The propeller, also designed by Professor Bellanca, is 5 ft. in diameter and has an 8 ft. pitch. The propeller is provided with an aluminum spinner with openings to take in air and thereby cool the covered part of the engine. Only the cylinder heads of the engine are exposed and they are well cooled by the air stream obtained from a speed of 120 m.p.h. The cooling obtained by this arrangement has been found very satisfactory. The motor has already flown for continuous periods of 3 hr. without a sign of overheating.

The motor is furnished with two magnets and a double oil pump assuring proper operation and sufficient lubrication. The carburetor is a French and permits a very slow idle speed.

The Landing Gear

The chassis is of the ordinary V type, consisting of two ash stream-line struts glued together with knock wipers. The arrangement of the shock absorbers is novel and affords a light and simple construction and permits of the same four purpose construction. The spreader board is of lifting stress section.

Tail Group

The empennage is composed of non-folding fixed stabilizer, to which are fastened the elevator flaps. The attachment of the stabilizer is such that it can easily be detached by removing four outer pins. The rubber is of oval shape and of sufficient area to insure complete control in landing the machine on the ground.

Controls

Interval and longitudinal balance is operated by stick control; the rudder is operated by foot bar. The stabilizer, elevator, ailerons and rudder are of very generous size, constructed to the design of the machine, and answer promptly to the various maneuvers.

Assembly Facility

The assembling and disassembling facilities of the machine are very remarkable. Once the machine has been adapted on other shipping is necessary. The first time this machine was taken from Des Moines to Ft. Crockett, Neb., for its initial test, it was assembled in 30 min., ready to fly.

GENERAL SPECIFICATIONS

Type of Machine	Weight, empty plane
Max. empty plane	1,000 lb.
Max. gross plane	1,200 lb.
Max. empty plane	1,000 lb.
Max. gross plane	1,200 lb.
Max. empty plane	1,000 lb.
Max. gross plane	1,200 lb.
Max. empty plane	1,000 lb.
Max. gross plane	1,200 lb.
Max. empty plane	1,000 lb.
Max. gross plane	1,200 lb.

PERFORMANCE	Weight, empty plane
Max. speed	100 m.p.h.
Max. altitude	10,000 ft.
Max. range	1,000 mi.
Max. climb	1,000 ft./min.
Max. descent	1,000 ft./min.
Max. turn	1,000 ft./min.
Max. bank	1,000 ft./min.
Max. roll	1,000 ft./min.
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AUGUST

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WAR DEPARTMENT

2600 Ground Planes Needed

Army and Navy Officials Plan Aeronautics Building Program Extending Several Years

That the Army and Navy realize that close cooperation is necessary to insure the maximum air defense is indicated by a report that is making the records of the departments in Washington.

Working separately, but with a coordinate plan of aerial national defense in mind, the aviation experts of the Army and Navy have under consideration plans for adequate aviation equipment totaling approximately 2600 airplanes, with progressively personnel to protect the nation in the event of war. The scheme is said to be intended to be completed in five years, but it is doubtful, being worked out in a responsible manner, not by the Naval Bureau of Aeronautics for sea duty, and the other by the Air Service of the Army for land operations.

Primarily the Bureau of Aeronautics requires about 200 new airplanes, for use on the two aircraft classes to be rebuilt from discarded battle cruisers, and approximately 200 new planes for employment in battleships, cruisers and various auxiliary war craft. These are to be replaced by the new multipurpose and, when possible, fitted with the aid of the armament and landing device just perfected. The production of the recently-developed all-metal torpedo plane is also planned in large numbers.

In the Army, Air Service officials look forward to provisions which will enable them to keep 200 planes on each coast, and about 1000 machines at interior strategic points. Regarding personnel, the Army desires a detail of about 2000 officers and 40,000 men in an future, and to be expanded by the aid of the armament and landing device just perfected. The production of the recently-developed all-metal torpedo plane is also planned in large numbers.

Both Naval and Military aviation officers see the immediate development of landing fields and ports at both coastal and interior cities, particularly along defense routes coastal and cross-country routes, with selected emergency fields.

Realizing that reaction on their part to effect these plans immediately would meet with considerable opposition, and refusal when an apparently mitigated Congress considered the estimates running into many millions, the proponents of the plans are hoping for a gradual development and completion within a few years. They nevertheless indicate that a

single first-class battleship costs about \$40,000,000, and that it is a vastly necessary to replace defense in defense aviation to be fully possible regardless of aerial equipment.

While the plans have not reached the Departmental Board at 200, they are practically complete, and may now be in the hands of the Departmental Board. The program is to be outlined in Congress, somewhat after the Navy's building program of 1916, running over several years. It would take time to build 2600 new machines and the money required will not be expended in one year and the program will be completed in five years.

Naval officials are toward adequate naval equipment for a well-rounded army, and of course do not seek to eliminate the first or any part of it. Eventually, they want an efficient and complete a service in the air having its own units. Today the Navy has approximately 312 seaplane planes, and 200 land-based planes. During the recent congressional hearings Admiral Moffett asked for 213 new planes of different types for replacing naval war craft for use "as fast" as he can get it, the time making no demand for other aircraft, except the completion of the 201. The Navy is also inclined to do demands for the completion of six new aircraft carriers.

Officials of the Army Air Service believe about 2000 planes will be needed to maintain and operate them on a coast-to-coast basis, the safety of the country, pointing out that the total force would form the first line of defense in a land attack. Today the Army has but 500 planes, some of them training planes, and about 400 planes being used in service which might be poured into service, if necessary, after being provided. Eventually, they want double the total or two thousand efficient planes and more than double the officers and men in the service at the time. The Secretary of War it is well known that the Air Service lacks men and funds, but is not reaching to troops the other branches of the Army nor take from their proportional financial allotments at the time. Nevertheless, it is felt that high Air Service Officers that a gradual and practical building up of the military air service is not only practical but essential in keeping up with the military progress of other services, especially since the reported plan of England to build 2600 military planes.

Aviation and West Point

A letter received by AVIATION from the Dept. Gen. Fred W. Meade, Superintendent of the United States Military Academy at West Point gives the present status of aviation at West Point.

Of the 131 Cadets who graduated on June 10, 1922, there were fourteen assigned to the Air Service. The remainder were assigned as follows: Engineers, 5; Signal Corps, 4; Infantry, 5; Cavalry, 12; Field Artillery, 32; Coast Artillery, 14. These numbers correspond very approximately to the total number of men who graduated, though not exactly in amount of several factors, including a number of transfers existing in each branch of the Service.

Aviation does not play a very great part in the curriculum, for the reason that the policy of that institution is not to turn out a graduate highly specialized in any one branch of the service, but to give to the Army a young officer with a basic knowledge of all branches. His specialization in the branch which he chooses follows his graduation.

For the past two years, the postcard work in aviation has been limited to one Effendi-machine flight in an airplane and one Effendi-machine flight in an airplane.

Academic instruction in the general subject of aviation is taken up in the Second Class or Junior Year after the completion of instruction in General Physics, Advanced in Mathematics and Mechanics, and Hydrostatics. The instruction given in the Department of Natural and Experimental Philosophy and covers the following phases of the subject of aerodynamics: Subsonic; Supersonic; Flight; Resistance;

Thrust; Reynolds; Power Required; Power Available from Air Propeller and the Airplane Engine; Relation between Power required and Power Available; Climb and Gliding; Airplane Performance at Different Altitudes; Single and Multiple Engines; Longitudinal Stability; Directional Stability. This instruction is conducted in the usual way by a professor, lecturer, or assistant professor, by conference, by lecture, by recitation, by problem, by experiment, by demonstration, by special articles in current aviation literature, and by the use of the Departmental Bulletin, Reports of the Advisory Board on Aeronautics, and in reference books available in the department. Suitable problems in aerodynamics are assigned and solved in the Section Room. A number of the articles of the aviation literature is reprinted in a plain paper practical application of principles learned in the purely theoretical work is pointed out and emphasized. Full use is made of lecture slides and motion films.

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April 10, 1922

Landing Field Information

Notice to Aviators Nos. 6 (1922)

New York

East River—College Point, L. J. 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Foreign News

France—Captain Madon, a famous French ace, is experimenting at Etampes with an extraordinary "machine" airplane designed by M. Armand, and adapted for the practical purpose of flight by the ocean.

This machine is said to do 180 m.p.h., and lands at a little over 20. The sporting newspaper *L'Aéro* gives an account of the new machine in the words of Captain Madon himself, as follows:

"There is no fuselage and no stabilizer; there are two planes, a stiff screen the pilot and the motor, and there are two rollers for steering, one on either side of the pilot. The machine is flown like an ordinary airplane. For steering direction upward or downward there are no controls, or small ones, behind the two stages of the lower plane, and three act like an ordinary elevating rudder. For lateral equilibrium these same screens are used, one being turned up while the other remains stationary."

Captain Madon claims that the new machine cannot go into a spin and that it recovers lost speed with great promptitude. He made his first flight after a few weeks' work upon M. Armand's models, and now, after some more modifications on the machine, he intends to continue his experiments at Etampes-Montesson. His first more extended flight will be from Etampes-Villiers-Corbeil-Leffort-Paris, and if that is successful he will attempt a long flight from Paris to Nice.

Great Britain—That commercial airplanes, specially designed for civil exploitation and backed by a proper maintenance system, can compete in the matter of dependability with any other kind of public vehicle was recently demonstrated by the Dundee Airways Co. of London.

A DH8A 11-passenger plane (450 hp "Napier" "Lion" engine) of this firm during six weeks carried out a double return journey between London and Paris each day except Sundays. The distance between London and Paris is 230 miles. While this performance was not made throughout with the same engine, it speaks well for the dependability of the DH8A that the particular machine in question has by now completed about 500 7-day hauls, or roughly 50,000 miles in a period of three months. If this number were multiplied by the number of passengers carried, it is obvious that a much more impressive number of "passenger-miles" would be obtained.

Col. Frank Searle, general manager of the Dundee Airways, who read in the past few years various papers pointing out that the high cost of operating aircraft was largely due to an inefficient utilization of the airplanes, recommending the existence of a large idle fleet, has thus borne out his theories with a practical demonstration.

Spain—It is announced that the Spanish government has given its consent to the transportation of an aerial postal service between France and Spain. An agreement is being drawn up between the Spanish government and the Latécoère company, which will undertake the transport of mails to and from Spain by utilizing the airplanes already flying on the Toulouse-Orléans route, which land at Barcelona, Alcala and Madrid. It is also likely that an agreement will be made with regard to the transport of goods by air between France and Spain.

The Netherlands—The Helens Aerial Navigation Co., ("HNEA") which for some time past has been conducting the aerial service between Amsterdam, Brussels and Paris, discontinued the operation of that line on June 1, and the service was taken over for operation by the Royal Aerial Navigation Co. of the Netherlands. This Amsterdam-Brussels service comprises a joint line of the Amsterdam-Paris service, the Brussels-Paris section of the line being operated by the Compagnie des Messageries Aériennes.

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